US005694375A

United States Patent [19]

Woodall

[11] Patent Number: 5,694,375

[45] Date of Patent: Dec. 2, 1997

[54] **ULTRA-BROADBAND HYDROPHONE**

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[21] Appl. No.: **624,833**

[22] Filed: **Mar. 22, 1996**

[51] **Int. Cl.**[6] **H04R 11/00**

[52] **U.S. Cl.** **367/185**

[58] **Field of Search** 367/185, 174, 367/149, 142, 140, 186, 187; 310/337, 334

[56] **References Cited**

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[57] **ABSTRACT**

The present invention relates to an ultra-broadband hydrophone which has two major electronic components and one mechanical component. The first electronic component comprises a flux-gate magnetometer for sensing changes in an ambient magnetic field and for creating an electrical signal representative of the ambient magnetic field. The second electronic component comprises an electrical circuit for demodulating the electrical signal and a low pass filter for smoothing the demodulated signal. The mechanical component is a magnetic diaphragm for receiving acoustic pressure waves and for causing changes in the ambient magnetic field in response to the received acoustic pressure waves. In a preferred embodiment, the hydrophone of the present invention also includes a sub-Hertz differential magnetic field winding for generating a differential magnetic field which nulls the ambient magnetic field about the flux-gate magnetometer.

9 Claims, 3 Drawing Sheets